

Lesson Plan:

Learn About Your State's Economy With GDP

Overview

The nation's multitrillion-dollar gross domestic product is a big concept to take in. Bring GDP closer to home with a lesson about your state's economy.

Students will analyze their own state's economy using state GDP data produced by the Bureau of Economic Analysis, the federal agency that estimates U.S. GDP. Students will use nominal GDP, real GDP growth, and per capita GDP to learn about their state economy and compare it with the economies of other states and the United States as a whole.

This state GDP lesson is designed to supplement and reinforce lessons about using GDP to measure national economies. If students need a refresher on the basics of GDP and how it is calculated, you may want to use the "What is GDP?" handout.

Voluntary National Content Standards in Economics (Grades 8-12):

Standard 18: Economic Fluctuations

Standard 15: Economic Growth

Learning Objectives

At the end of this lesson, students should be able to:

- Define:
 - nominal GDP
 - real GDP
 - per capita GDP
 - economic growth rate
- Differentiate between nominal GDP levels and real GDP growth rates
- Explain the importance of using inflation-adjusted (real) data to measure economic growth
- Explain why GDP per capita is useful for comparing economies of countries or states with different population sizes
- Apply their knowledge of nominal GDP, real GDP growth, and per capita GDP to analyze and compare state economies, including their own state's

Resources:

All materials are available online at www.bea.gov/classroom.

- Handout No. 1 (two-sided):
 - Nominal GDP Map and state list
 - Two charts: Georgia Nominal GDP and Georgia Real GDP
 - Provide one handout per student or one per small group; students can also view handout online
- Handout No. 2 (two-sided):
 - Real GDP Growth Map and state list
 - Real GDP Per Capita Map and state list
 - Provide one handout per student or one per small group; also available online
- Activities (Parts A, B, C, and D can be used together or as separate lessons.) One per student.
- Quiz. One per student.
- Glossary with definitions of gross domestic product, nominal GDP, real GDP, economic growth rate, and per capita GDP
- “What Is GDP?” flyer (an optional refresher on GDP concepts)

(Note that the 2017 data in these handouts are provided as practice examples and may not reflect BEA’s most recently updated 2017 data or the most recent period for which data are available. These inflation-adjusted data use 2009 as the reference year. For the latest state data or more information about GDP by state statistics, visit <https://www.bea.gov/data/gdp/gdp-state>.)

Process:

Part A. Nominal GDP

1. Remind students that GDP – gross domestic product – is one of the “vital signs” used to measure the health of a nation’s economy. GDP measures the market value of the goods and services produced in a country. It’s used to measure and compare economies around the world.

Tell students that the U.S. government also produces GDP statistics for states. They can use these statistics to learn about their own state’s economy and to compare it to other states and the overall U.S. economy. **This is important because economic conditions can vary greatly across the United States. Your state economy may not mirror the widely reported national GDP statistics.**

Pass out Handout No. 1, labeled Nominal GDP on one side and **Comparing GDP Measures** on the other side (or direct students to the online version at www.bea.gov/classroom).

2. **Discussion:** Lead the students in a discussion of the **Nominal GDP Map** and list. First, point out the map and tell them it's a quick way to get a rough idea of the relative sizes of states' economies. Larger economies (those with higher levels of gross domestic product) are shaded darker, and smaller economies are in lighter shades.
3. Direct their attention to the ranked list of GDP levels for all 50 states. Ask the students to find your state. Ask the students, working in groups or individually, to answer the questions in **Activities Part A: Nominal GDP** (Questions 1-4).

See Activities Part A: Nominal GDP

4. **Discussion:** When students are ready, go over their answers to Questions 1 and 2 about your state. *See Activities and Quiz Answer Key.*
5. Discuss their responses to Questions 3 and 4, with emphasis on the information that's not provided by **nominal GDP levels**, such as whether the state's economy is healthy and growing. Tell students that using other types of GDP data will provide a fuller picture of the state's economy.

Part B. Real GDP

6. **Discussion:** Tell students that when using GDP statistics, it's important to understand the difference between current-dollar data and inflation-adjusted data. Ask them to look at the side of **Handout No. 1** that shows two line charts with data about Georgia's economy.

Tell students that these charts show data measuring how much the state's economy grew – or shrank – over time. The inflation-adjusted data are called “real” GDP. Data that have **not** been adjusted for inflation are called “nominal” or “current-dollar” GDP.

Explain that a state's real annual GDP statistics show the value of its production each year as if prices had stayed the same over time (in these data, the reference year is 2009). The inflation adjustment allows you to see only the growth caused by increased production of goods and services, with the effects of rising prices stripped away.

7. Ask the students, working in groups or individually, to answer the questions in **Activities Part B: Real GDP** (Questions 5-7), using the two Georgia GDP line charts on **Handout No. 1**.

See Activities Part B: Real GDP

8. **Discussion:** When the students are ready, go over their answers to Questions 5-6. *See Activities and Quiz Answer Key.*
9. Discuss the students' responses to Question 7: Which measure – **nominal GDP or real GDP** – do you think gives a more accurate picture of the recession and economic recovery in Georgia? Why?

To explain further, you may want to use an example: If you buy a gallon of milk for \$3.25 one year, and the next year you pay \$3.50 for a gallon of milk, did you get more milk? No. Yet the higher milk price would contribute to the calculation of a higher nominal GDP for the second year, even if no more milk were produced. By adjusting for inflation, real GDP counts the value of a gallon of milk the same from year to year.

Part C. GDP Growth Rate

10. **Pass out Handout No. 2**, labeled **Real GDP Growth** on one side and **Real GDP Per Capita** on the other (or direct students to the online version).
11. **Discussion:** Direct students to the side of **Handout No. 2** labeled **Real GDP Growth**. Explain that these data show how much each state's economy grew (or shrank) from 2016 to 2017. This is the state's real GDP annual growth rate. Because they show rates, the data are in percentages.

Tell students that when they hear government officials, newscasters, or economists say "GDP," they're most often referring to GDP *growth rates*, instead of dollar amounts. Ask your students to think about why economic growth rates are important as they answer the questions in **Activities Part C: GDP Growth Rate** (Questions 8-12).

See Activities Part C: GDP Growth Rate

12. **Discussion:** When students are ready, go over their answers to Questions 8-11. *See Activities and Quiz Answer Key.*
13. For Question 12, ask several students to share a benefit of economic growth that they named.

You can sum up by saying that economic growth in a state helps raise the standard of living of its residents. Economic growth also encourages businesses, individuals, and governments to invest

more in physical and human capital (buildings, technology, education, job training, etc.) that can lead to more growth.

14. You may want to introduce BEA's state industry data or state personal income statistics, other economic statistics, business news coverage, or other information to discuss reasons why your state's economy grew faster or slower than the U.S. economy overall.

Part D: Per Capita GDP

15. Direct students to the other side of **Handout No. 2**, labeled **Real GDP Per Capita**. Tell them that like growth rates, GDP per capita can help them understand and compare the health of economies of differing sizes.
16. **Discussion:** Remind the students that "per capita" means "per person." GDP per capita is calculated by dividing a nation or state's GDP by the number of people living there.
17. Ask the students to compare the **Nominal GDP Map on Handout No. 1** with the **Real GDP Per Capita Map on Handout No. 2**. Can they spot states that are darker on the Real GDP Per Capita Map than they are on the Nominal GDP Map? *Yes. Notice that many states that have a relatively low nominal GDP are ranked higher in GDP per capita (such as North Dakota, Alaska, and Wyoming, for example).*
18. Ask the students, working in groups or individually, to complete **Activities Part D: GDP Per Capita** (Questions 13-20), using the two maps.

See Activities Part D: GDP Per Capita

19. **Discussion:** Go over students' answers to Questions 13-18. *See Activities and Quiz Answer Key.*
20. Discuss students' responses to Question 19: Why might larger, more densely populated states tend to have higher **nominal GDP levels** – in other words, more economic production – than smaller or less populous states?

You can summarize by saying that states covering large areas or with larger populations are more likely to have some combination of: more workers, more highly skilled or educated workers, more businesses located there, more physical capital, and/or more natural resources to produce more goods and services.

21. Discuss students' answers to Question 20: Why might you want to consider a state's **GDP per capita** in addition to its **nominal GDP level**?

You can summarize by saying that GDP per capita is a useful way to compare the GDP levels for two places with different population sizes. GDP per capita is often used as a rough comparison of the living standards of different nations.

Note, however, that GDP per capita is an average. It doesn't tell you how the income generated from production is spread across a state's population and its corporations.

22. You may want to introduce additional information – such as BEA's data on the major industries in your state, or descriptions of your state's natural resources, its education levels, population density, etc. – to discuss factors that influence your state's per capita GDP ranking.
23. In summary: Nominal GDP levels, GDP growth rates, and GDP per capita are important tools for assessing and comparing the economic strength of economies, whether you're analyzing nations or states.

Assessment

24. Pass out the Quiz. Ask students to answer the quiz questions and turn in to you, or you may discuss them as a class.

See ANSWER KEY – Activities and Quiz.

Notes:

- More-suitable GDP comparisons for Washington, D.C., are available in [BEA's metropolitan statistical area data](#), which include the Washington-Arlington-Alexandria, DC-VA-MD-WV, area.
- You can tailor this lesson plan to metropolitan statistical areas, instead of states, by using the metro GDP data found at <https://www.bea.gov/data/gdp/gdp-metropolitan-area>.
- Questions? Ask BEA Public Affairs at 301-278-9004 or email CustomerService@bea.gov.
- Please send feedback about this plan or suggestions for other BEA lessons that would benefit your class (U.S. GDP? The trade balance? Consumer spending?) to CustomerService@bea.gov.

www.bea.gov/classroom

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ANSWER KEY – Activities & Quiz

Part A: Nominal GDP

Use the nominal GDP state ranking, below the map on **Handout No. 1**, to answer these questions:

(Answers below are based on Georgia. For another state's answers, find that state in the list.)

1. What was our state's gross domestic product for 2017? Georgia=\$554 billion
2. Where did our state's GDP rank among all states? Georgia=9th
3. What does this list tell you about our state's economy? Answers will vary; students may say how big the state economy is, the value of the goods and services produced in the state, how your state ranks against other states, etc.
4. What doesn't it tell you? Answers may be wide-ranging and could include: The current GDP level doesn't tell you whether the economy is growing or shrinking; why the economy is smaller or larger than that of other states; whether people in the state have good jobs, are paid well, are happy, etc.

Part B: Real GDP

Use the two charts on **Handout No. 1** labeled **Georgia Nominal GDP** (Current Dollars) and **Georgia Real GDP** (Adjusted for Inflation) to answer these questions:

5. Did Georgia's economy shrink at any time between 2005 and 2017? Yes or No Yes
6. Compare the **nominal** GDP chart with the **real** GDP chart. Notice that the Georgia economy's decline, which was part of a national recession, appears less steep in the nominal GDP chart than in the real GDP chart.

In which chart does Georgia's economy appear to grow more quickly after the downturn?

Nominal GDP

7. Which measure – **nominal GDP** or **real GDP** – do you think gives a more accurate picture of the effects of the recession and economic recovery in Georgia? Why?

Real GDP. Students may say things such as: Removing the effects of inflation makes it easier to see how the economy's output shrank or grew. In other words, when inflation is included in the data, some of the decrease in Georgia's production is offset by rising prices for goods and services. Including rising prices also makes the recovery appear to move faster. Removing price changes lets you see the actual change in the state's production.

Part C: GDP Growth Rate

Compare the maps and lists labeled **Nominal GDP (Handout No. 1)** and **Real GDP Growth (Handout No. 2)**.

8. On the **real GDP growth** map, the states shaded darkest had the fastest annual economic growth. Are the states with the fastest growing economies always the states with the largest **nominal GDP**? No
9. Find your state in the **real GDP growth** list. What was your state's real GDP growth rate for 2017? Georgia=2.7 percent. (Answers for other states are in the state real GDP growth rate list.)
10. Where did your state's real GDP growth rank among all 50 states? Georgia=8th.
11. The nation's real annual GDP growth for 2017 was 2.2 percent. Did your state's economy grow faster or slower (or at the same rate)? Georgia=faster (For other states, compare your answer to Question 5 to the national GDP of 2.2 percent.)
12. What are some possible benefits of economic growth? Answers might include that growth may create jobs, lead to better pay, encourage business investment, help reduce poverty and improve living standards, increase tax revenues to pay for better government services and infrastructure spending, produce more goods and services that people and businesses want to buy, etc.

Part D: GDP Per Capita

Compare the maps and lists labeled **Nominal GDP (Handout No. 1)** and **Real GDP Per Capita (Handout No. 2)**.

13. Using the **nominal** GDP list, which five states had the largest economies in 2017? California, Texas, New York, Florida, and Illinois
14. Are those the same five states that lead the GDP **per capita** list? Yes or No. No (Only New York appears in the Top 5 of both lists.)
15. On the **nominal GDP** map, find Texas and Delaware. Texas covers a far greater area and has a much larger population. It's not surprising to see that it has a much larger GDP than Delaware.

Now look at the map and list for GDP **per capita**. Which state has the larger GDP per person – Texas or Delaware? Delaware

16. Find Alaska on the two maps. Although it is the largest U.S. state by area, Alaska has a comparatively small population. On which of these two lists does Alaska rank higher: **nominal GDP** or **GDP per capita**? GDP per capita.
17. Using the list that ranks states by **GDP per capita**, find your state and finish the sentences below: (Answer key is for Georgia. Other states' answers are in the list.)

For my state, Georgia, the real GDP per capita was \$45,925. My state ranked 29th in real per capita GDP.

18. The comparable per capita figure for the United States was \$51,337. Compared to the United States, my state's GDP per capita was: higher / lower. Georgia=Lower
19. Why might larger, more densely populated states tend to have higher **nominal GDP levels** – in other words, more economic production – than smaller or less populous states?
Answers may include that the bigger or more populous states may have more workers or more highly skilled or educated workers; more businesses located there; a larger supply of natural resources such as oil and gas or farmland; more physical capital such as factories, buildings, and machinery, etc.

20. Why might you want to consider a state's **GDP per capita** in addition to its **nominal GDP** level? Answers will vary but may include that GDP per capita provides more context or that comparing big states to small states doesn't tell the full story. More specifically, GDP per capita allows comparisons of the economies of places with vastly different population sizes. GDP per capita is often used as a rough comparison of the living standards of different nations.

(Quiz Answer Key is on next page.)

QUIZ – ANSWER KEY

1. What can GDP statistics be used to measure?
 - A. The size of a state’s economy
 - B. The growth of a state’s economy
 - C. The income of a state’s workers
 - D. Both A and B**

2. Which measure would you use to find the state with the largest economy?
 - A. A map of the United States
 - B. Nominal GDP levels**
 - C. Per capita GDP
 - D. Real GDP growth rates

3. Which of these measures would you use to take differing population sizes into account when comparing state economies?
 - A. Per capita GDP**
 - B. Nominal GDP levels
 - C. Real GDP levels
 - D. None of the above

4. Washington state had the highest GDP growth rate among U.S. states in 2017. This tells you that Washington was:
 - A. The largest state in square miles
 - B. The state with the largest economy
 - C. The state with the fastest growing economy**
 - D. All of the above

5. The biggest state economies always grow at the fastest rate. True or False. **False**